

WHAT IS CLAIMED IS:

1. A method to determine when a wireless terminal has been paged by a servicing base station, the method comprises:

receiving an encoded paging burst on a paging channel;

5 decoding the encoded paging burst to produce a decoded paging burst;

determining that the decoded paging burst contains a null page for the wireless terminal;

processing the encoded paging burst to produce a null page pattern;

entering a sleep mode for a sleep mode period;

awakening from the sleep mode to receive an additional encoded paging burst on the

10 paging channel;

processing the additional encoded paging burst to produce a processed encoded paging burst;

comparing the processed encoded paging burst to the null page pattern; and

when the comparison is favorable, determining that the additional encoded paging burst

15 is a null page.

2. The method of Claim 1, further comprising reentering the sleep mode upon the favorable comparison.

20 3. The method of Claim 1 wherein the additional encoded paging burst comprises 4 radio frequency bursts, and wherein when a comparison of a first RF burst is unfavorable, a comparison of a subsequent RF burst is made, wherein if comparisons of the 4 RF bursts are unfavorable, the additional encoded paging burst is decoded to produce a processed encoded paging burst.

4. The method of Claim 1 wherein:

the null page pattern comprises a bit pattern; and

the processed encoded paging burst comprises a plurality of soft decision bits.

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5. The method of claim 4, wherein:

comparing the processed encoded paging burst to the null page pattern comprises

comparing each bit of the null page pattern to a corresponding soft decision bit of

the processed encoded page burst to produce a plurality of comparisons; and

10 when the number of comparisons exceeds a comparison threshold, determining that the

additional encoded paging burst is a null page.

6. The method of Claim 1 wherein the null page pattern and the processed encoded

paging burst each comprise a plurality of soft decision bits.

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7. The method of claim 6, wherein:

comparing the processed encoded paging burst to the null page pattern comprises

comparing each soft decision bit of the null page pattern to a corresponding soft

decision bit of the processed encoded page burst to produce a plurality of

20 comparisons; and

when the number of comparisons exceeds a comparison threshold, determining that the

additional encoded paging burst is a null page.

8. The method of claim 1, wherein processing the additional encoded paging burst

includes at least equalizing the additional encoded paging burst to produce a plurality of soft decision bits.

9. The method of Claim 1 further comprises, when the comparison is unfavorable,  
5 assuming that the wireless terminal has been paged.

10. The method of Claim 1 wherein the comparison is favorable when the processed encoded paging burst and the null page pattern meet a similarity threshold.

10 11. The method of Claim 1 wherein the sleep mode period ranges between about 0.5 second to about 2.0 seconds.

10. The method of Claim 1, wherein the wireless terminal awakens from the sleep mode at the expiration of a sleep mode period to receive as least one paging burst.

15 11. The method of Claim 1, wherein the wireless terminal operates according to the GSM standard.

12. The method of Claim 1, wherein processing the encoded paging burst to produce  
20 a null page pattern comprises:

determining an encoding process employed by the servicing base station for the paging burst; and

re-encoding the decoded paging burst using a determined encoding process to produce the null page pattern.

13. The method of Claim 1, wherein processing the encoded paging burst to produce a null page pattern comprises:

equalizing the encoded paging burst to produce a plurality of soft decisions;

5 generating a bit pattern based upon the plurality of soft decisions; and

using the bit pattern as the null page pattern.

14. A wireless terminal that comprises:

a Radio Frequency (RF) front end;

10 a baseband processor communicatively coupled to the RF front end;

an enCOder/DECoder (CODEC) processing module communicatively coupled to the baseband processor;

wherein during a first time period, the RF front end, the baseband processor, and the

CODEC processing module are operable to:

15 receive an encoded paging burst on a paging channel;

decode the encoded paging burst to produce a decoded paging burst;

determine that the decoded paging burst contains a null page for the wireless terminal;

process the encoded paging burst to produce a null page pattern; and

20 enter a sleep mode for a sleep mode period; and

wherein during a second time period, the RF front end, the baseband processor, and the

CODEC processing module are operable to:

awaken from the sleep mode to receive an additional encoded paging burst on the paging channel;

process the additional encoded paging burst to produce a processed  
encoded paging burst;  
compare the processed encoded paging burst to the null page pattern; and  
when the comparison is favorable, determining that the additional encoded  
5                    paging burst is a null page.

15            15.     The wireless terminal of Claim 14, wherein during the second time period, the RF  
front end, the baseband processor, and the CODEC processing module are operable to reenter the  
sleep mode upon the favorable comparison.

10            16.     The wireless terminal of Claim 14, wherein during the second time period, the  
CODEC processing module is operable to, when the comparison is unfavorable, decode the  
processed encoded paging burst.

15            17.     The wireless terminal of Claim 14, wherein:  
the null page pattern comprises a bit pattern; and  
the processed encoded paging burst comprises a plurality of soft decision bits.

18.     The wireless terminal of claim 17, wherein:  
20     the baseband processor is operable to compare each bit of the null page pattern to a  
corresponding soft decision bit of the processed encoded page burst to produce a  
plurality of comparisons; and  
when the number of comparisons exceeds a comparison threshold, the baseband  
processor is operable to determine that the additional encoded paging burst is a

null page.

19. The wireless terminal of Claim 14 wherein the null page pattern and the processed encoded paging burst each comprise a plurality of soft decision bits.

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20. The wireless terminal of claim 19, wherein:

the baseband processor is operable to compare each soft decision bit of the null page pattern to a corresponding soft decision bit of the processed encoded page burst to produce a plurality of comparisons; and

10 when the number of comparisons exceeds a comparison threshold, the baseband processor is operable to determine that the additional encoded paging burst is a null page.

21. The wireless terminal of claim 14, wherein in processing the additional encoded  
15 paging burst, the baseband processor is operable to equalize the additional encoded paging burst to produce a plurality of soft decision bits.

22. The wireless terminal of Claim 14, wherein during the second time period, the baseband processor is operable to, when the comparison is unfavorable, assume that the wireless  
20 terminal has been paged.

23. The wireless terminal of Claim 14, wherein during the second time period, the baseband processor is operable to determine that the comparison is favorable when the processed encoded paging burst and the null page pattern meet a similarity threshold.

24. The wireless terminal of Claim 14, wherein the sleep mode period ranges between about 0.5 second to about 2.0 seconds.

5           25. The wireless terminal of Claim 14, wherein the wireless terminal operates according to the GSM standard.

26. The wireless terminal of Claim 14, wherein the baseband processor is operable to produce the null page pattern by:

10           determining an encoding process employed by the servicing base station for the paging burst; and  
re-encoding the decoded paging burst using a determined encoding process to produce the null page pattern.

15           27. The wireless terminal of Claim 14, wherein the baseband processor is operable to produce the null page pattern by:

equalizing the encoded paging burst to produce a plurality of soft decisions;  
generating a bit pattern based upon the plurality of soft decisions; and  
using the bit pattern as the null page pattern.

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28. A wireless terminal that comprises:

a Radio Frequency (RF) front end;

a baseband processor communicatively coupled to the RF front end;

wherein during a first time period, the RF front end and the baseband processor are

operable to:

receive an encoded paging burst on a paging channel;

decode the encoded paging burst to produce a decoded paging burst;

determine that the decoded paging burst contains a null page for the  
wireless terminal;

process the encoded paging burst to produce a null page pattern; and

enter a sleep mode for a sleep mode period; and

wherein during a second time period, the RF front end and the baseband processor are

operable to:

awaken from the sleep mode to receive an additional encoded paging burst  
on the paging channel;

process the additional encoded paging burst to produce a processed  
encoded paging burst;

compare the processed encoded paging burst to the null page pattern; and

when the comparison is favorable, determining that the additional encoded  
paging burst is a null page.

29. The wireless terminal of Claim 28, wherein during the second time period, the RF front end and the baseband processor are operable to reenter the sleep mode upon the favorable comparison.



30. The wireless terminal of Claim 28, wherein during the second time period, the baseband processor is operable to, when the comparison is unfavorable, decode the processed encoded paging burst.

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31. The wireless terminal of Claim 28, wherein:  
the null page pattern comprises a bit pattern; and  
the processed encoded paging burst comprises a plurality of soft decision bits.

10 32. The wireless terminal of claim 31, wherein:  
the baseband processor is operable to compare each bit of the null page pattern to a  
corresponding soft decision bit of the processed encoded page burst to produce a  
plurality of comparisons; and  
when the number of comparisons exceeds a comparison threshold, the baseband  
15 processor is operable to determine that the additional encoded paging burst is a  
null page.

33. The wireless terminal of Claim 28 wherein the null page pattern and the processed encoded paging burst each comprise a plurality of soft decision bits.

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34. The wireless terminal of claim 33, wherein:  
the baseband processor is operable to compare each soft decision bit of the null page  
pattern to a corresponding soft decision bit of the processed encoded page burst to  
produce a plurality of comparisons; and

when the number of comparisons exceeds a comparison threshold, the baseband processor is operable to determine that the additional encoded paging burst is a null page.

5           35.     The wireless terminal of claim 28, wherein in processing the additional encoded paging burst, the baseband processor is operable to equalize the additional encoded paging burst to produce a plurality of soft decision bits.

10           36.     The wireless terminal of Claim 28, wherein during the second time period, the baseband processor is operable to, when the comparison is unfavorable, assume that the wireless terminal has been paged.

15           37.     The wireless terminal of Claim 28, wherein during the second time period, the baseband processor is operable to determine that the comparison is favorable when the processed encoded paging burst and the null page pattern meet a similarity threshold.

            38.     The wireless terminal of Claim 28, wherein the sleep mode period ranges between about 0.5 second to about 2.0 seconds.

20           39.     The wireless terminal of Claim 28, wherein the wireless terminal operates according to the GSM standard.

            40.     The wireless terminal of Claim 28, wherein the baseband processor is operable to produce the null page pattern by:

determining an encoding process employed by the servicing base station for the paging burst; and  
re-encoding the decoded paging burst using a determined encoding process to produce the null page pattern.

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41. The wireless terminal of Claim 28, wherein the baseband processor is operable to produce the null page pattern by:

equalizing the encoded paging burst to produce a plurality of soft decisions;

generating a bit pattern based upon the plurality of soft decisions; and

10 using the bit pattern as the null page pattern.